Himachal Pradesh University

(NAAC Accredited "A" Grade University)

Gyan Path, Summer Hill,

Shimla -171005

Plan, Scheme, and Syllabus

to start a programme

Diploma

in

Computer Applications

(Effective from the session 2021-22)

Department of Computer Science
Under the Faculty of Physical Sciences
Himachal Pradesh University
Shimla – 5

Contents

1. Introduction

Applications of computer are amongst the emerging field of the 21st century that will impact all segments of daily life by 2025. The recent development in computer is bringing significant social and economic benefits to the world. As our daily lives are seamlessly integrating more and more data driven applications, the role of computer becomes increasingly important in transforming organizations, industries and society in general. Thus, the need of the hour is to integrate the power of computer to every part of life like science, engineering, banking, sales, finance, marketing, construction, manufacturing, healthcare, travel, hospitality, leisure, environmental monitoring, logistics etc. Diploma proposed in this report, and to be started by Himachal Pradesh University, shall be one of such academic platforms, which caters to impart most advanced knowledge, methods and processes to exploit various computer-based solutions to real-world problems. After the completion of this course, the students may have career opportunities with exceptional prospective fields of healthcare, business, e-commerce, social networking companies, climatology, biotechnology, genetics, and other important areas. Students can opt for a variety of career options after completing this program.

2. Program Details:

(a) Program   : Diploma in Computer Applications
(b) Duration   : One (01) Year Program divided into two (02) Semesters
(c) Eligibility   : 10+2 in any stream with 50% marks (45% for SC/ST/PWD Candidates)
(d) Mode of Admission: Direct
(e) Fee Structure   : RS 5000 / Per Semester

3. Examinations:

As the diploma is spanned over one year and distributed into two semesters, the learning outcomes shall be assessed after every semester. The assessment of the students shall consist of the following components:

Sr. No.	Assessment Component
1	Semester End External Examinations (Theory)
2	Internal Assessment (Theory)
3	Semester End Examination(Practical)
4	Internal Assessment (Practical)

4. Minimum Criteria to Award the Diploma

Minimum Criteria to Award the Diploma is as per Himachal Pradesh University Norms.

Diploma
in
Computer Applications

Scheme
&
Syllabus

Credit Based System

Effective from

Academic Session 2021-2022

PROGRAMME OUTCOMES (POs)	
PO1	**Computational Knowledge:** Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
PO2	**Problem Analysis:** Identify, formulate, research literature, and solve computing problem searching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
PO3	**Design/Development of Solutions:** Design and evaluate solutions for computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PO4	**Conduct investigations of Computing problems:** User search-based knowledge and research methods including design of experiments, analysis, and interpretation of data, and synthesis of the information to provide valid conclusions
PO5	**Modern Tool Usage:** Create, select, adapt, and apply appropriate techniques, resources, and modern computing tools to computing activities, with an understanding of the limitations.
PO6	**Innovation and Entrepreneurship:** Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large
PO7	**Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional
PO8	**Project management and finance:** Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team to manage projects and in multidisciplinary environments
PO9	**Communication Efficacy:** Communicate effectively with the computing community, and with society at large, about computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions
PO10	**Societal and Environmental Concern:** Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices
PO11	**Individual and Teamwork:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PROGRAMME SPECIFIC OUTCOMES (PSOs)	
On completion of the program students will be able to:	
PSO1	Recognize computer system, its components and relationship amongst them.
PSO2	Understand about critical concepts like programming languages & applications development.
PSO3	Work on different System Software and Application Software.
PSO4	Acquire required skillset to excel in the field of Information Technology

Abbreviations Used:

L	LECTURES
P	PRACTICALS
C	CREDITS
H	HOURS
EE	EXTERNAL EXAMINATIONS
IA	INTERNAL ASSESSMENT

Semester-I

Sr. No.	Course Code	Course Title	Contact Hrs/week			C	Semester End Marks		Total Marks
			L	P	H		EE	IA	
1.	DCA-101	Problem Solving Using C	4	0	4	4	75	25	100
2.	DCA-102	Office Applications	4	0	4	4	75	25	100
3.	DCA-103	Computer Fundamentals	4	0	4	4	75	25	100
4.	DCA-104	Operating System	4	0	4	4	75	25	100
5.	DCA-151	Lab-I(Problem Solving Using C)	0	6	6	3	50	25	75
6.	DCA-152	Lab-II(Office Applications)	0	6	6	3	50	25	75
Total					28	22	400	150	550

Semester-II

Sr. No.	Course Code	Course Title	Contact Hrs/week			C	Semester End Marks		Total Marks
			L	P	H		EE	IA	
1.	DCA-201	Computer Networks	4	0	4	4	75	25	100
2.	DCA-202	Internet Technology and Web Page Design	4	0	4	4	75	25	100
3.	DCA-203	Database Management System	4	0	4	4	75	25	100
4.	DCA-204	E-Commerce	4	0	4	4	75	25	100
5.	DCA-251	Lab-III(Database Management System)	0	6	6	3	50	25	75
6.	DCA-252	Lab-IV (Internet Technology and Web Page Design)	0	6	6	3	50	25	75
Total					28	22	400	150	550

Total Credits of the Programme are 22+22 = 44.

Semester-I

DCA–101   Problem Solving Using C

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Recognize various components of Computer System
CO2:	Learn the fundamental programming concepts and methodologies.
CO3:	Implement the fundamental programming methodologies in the C programming language via laboratory experiments.
CO4:	Code, Document, Test, and implement a well-structured, robust computer program using the C programming language

PART–A

Problem solving with Computers: Steps for Problem Solving, Using Computer as a Problem-Solving Tool, Design of Algorithms, Definition, Features of Algorithm, Criteria to be followed by an Algorithm, Analysis of Algorithm Complexity, Flowcharts, Basic Symbols used in Flowchart Design., Debugging, testing and documentation, structure-programming concepts.

PART–B

Overview of C: General structure of C Program, Data types, Operators and expressions: Constants and Variables, Data types, Declaring Variables, Storage Classes, Assignment statement, Input/Output: Unformatted and formatted I/O Functions (Character and strings, I/O, scanf( ), printf ( ))

PART–C

Control Statements :Decision making using if, if-else, else-if and switch statements, Looping using for, while and do-while statements, Transferring Program control: break and continue statements

PART–D

Array & strings: Introduction to arrays, Declaring arrays, Initializing arrays, Processing arrays, Introduction to strings. Functions: Defining a function, Local variables, return statement, invoking a Function, specifying and passing arguments to a function, Recursion.

Text Books:
1. Mullis Cooper: Spirit of C: Jacob Publications
2. Yashwant Kanetkar : Let us C: BPB

Reference Books:
1. Kernighan B.W.& Ritchie D.M.: The C Programming Language: PHI
2. Byron Gottfried: Programming in C:TataMcGrawHill

DCA-102 Office Applications

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Recognize various modules of office suite
CO2:	Recognize and use different functions of Word Processors and Spreadsheets and Presentations.
CO3:	Write, Edit, Print letter, application, report, spreadsheet.
CO4:	Evaluate worksheet created using data, formulas, graphics etc.

PART–A

Definition of Software: Concepts of Open Source Software, Philosophy – licensing, copyright. Project Management, Software, Timesheet system, Office Applications, Word Processing Spreadsheet , Database, Email – Sending mail to a number of people in a group.

PART–B

Word Processing: Working with Documents Opening & Saving files, Editing text documents, Inserting, Deleting, Cut, Copy, Paste, Undo and Redo, Find, Search, Replace, Formatting page & setting Margins.

Formatting Documents - Setting Font styles, Font selection- style, size, color etc. Type face - Bold, Italic, Underline, Case settings, Highlighting, Special symbols, Setting Paragraph style, Alignments, Indents, Line Space, Margins, Bullets & Numbering.

Creating Tables- Table settings, Borders, Alignments, Insertion, deletion, Merging, Splitting, Sorting, and Formula, Drawing - Inserting Clip Arts, Pictures/Files etc.

PART–C

Spread Sheet: Introduction & its Applications, Opening Spreadsheet, Menus - main menu, Formula Editing, Formatting, Toolbars, Using Icons, Using help, Shortcuts, Spreadsheet types.

Formula - finding total in a column or row, Mathematical operations (Addition, Subtraction, Multiplication, Division, Exponentiation), using other Formulae.

Working with sheets – Sorting, Filtering, Validation, Consolidation, and Subtotal. Creating Charts - Drawing. Printing. Using Tools – Error checking, Spell Checks, Formula Auditing, Creating & Using Templates.

PART–D

Introduction to presentation: Opening new presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts. Creating a presentation - Setting Presentation style, Adding text to the Presentation. Formatting a Presentation - Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout. Adding Graphics to the Presentation- Inserting pictures, movies, tables etc. into presentation, Adding Effects to the Presentation- Setting Animation & transition effect. Printing Handouts, Generating Standalone Presentation viewer.

Text Books:
1. Microsoft Office – Complete Reference – BPB Publication
2. Learn Microsoft Office – Russell A. Stultz – BPB Publication

Reference Books:
1. Courter, G Marquis. Microsoft Office 2000: Professional Edition. BPB.
2. Koers D. Microsoft Office XP Fast and Easy. PHI.
3. Nelson, S L and Kelly, J. Office XP: The Complete Reference. Tata McGraw-Hill

DCA-103 Computer Fundamentals

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Recognize different components of Operating System
CO2:	Identify different types input, output devices and storage devices.
CO3:	Evaluate different network topologies and network architecture
CO4:	Analyse working of a computer system.

PART–A

Introduction: Characteristics of Computers, Evolution of computers, Capabilities and limitations of computers, Generations of computers, Types of computers (micro, mini, main frame, supercomputers), Block diagram of computer, Basic components of a computer system Input unit, output unit, Arithmetic logic Unit, Control unit, central processing unit, Instruction set, registers, processor speed, type of processors.

Memory: main memory organization, main memory capacity, RAM, ROM, EPROM, PROM, cache memory, PCs specifications.

PART–B

Input devices: Keyboard, Pointing Devices mouse, Touch Screens, Joystick, Electronic pen, Trackball, Scanning Devices-Optical Scanners, OCR, OMR, Bar Code Readers, MICR, Digitizer, Electronic card reader, Image Capturing Devices-Digital Cameras. Output devices- Monitors, CRT, LCD/TFT, Printers- Dot matrix, Inkjet, Laser, Plotters- Drum, Flatbed, Screen image projector

PART – C

Programming Languages: machine level, assembly level, high level. Operating System: Introduction, Types and Functions of Operating System. Basic Computer Organization: IAS Computer, Von Neumann Computer, System Bus. CPU Organization, Arithmetic and Logic Unit, Control Unit, CPU Registers

PART – D

Introduction to Networking: Basic Features, LAN, MAN and WAN. ISO-OSI model of Networking, client – Sever Architecture's. Intranet and Internet: Servers and Clients; Ports; Domain Name Server (DNS), WWW.

Text Books:
1. V. Rajaraman: Introduction to Computer. PHI Learning
2. Pradeep K. Sinha, Priti Sinha, "Computer Fundamentals". BPB Publications.

Reference Books:
1. M. Morris Mano, Computer System &Architecture, PHI
2. Behrouz A Forouzan "Computer Networks", McGraw Hill

DCA-104 Operating System

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Identify Command Line and GUI Operating System
CO2:	Analyze different types of Operating System and their services.
CO3:	Evaluate different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
CO4:	Recognize virtual memory concepts and secondary memory management

PART–A

Introduction: Definition Of The Operating System, Functions Of An Operating System, Different Types Of Systems - Simple Batch System, Multi-Programmed Batched System, Time Sharing System, Personal Computer Systems, Parallel Systems, Distributed Systems, Real Time Systems.

PART–B

Process Management: Process- Process Concept, Process Scheduling, Process Lifecycle. Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention.

PART-C

Memory Management: Logical & physical address space, Swapping, Continuous Allocation (single partition, multiple partition), internal fragmentation and external fragmentation, Paging, Segmentation, Segmentation With Paging, Virtual Memory, Demand Paging, Performance Of Demand Paging, Page Replacement and Page Replacement Algorithms.

PART-D

File System Interface: File Concept, Access Methods–sequential, direct, index, Directory Structure. Secondary Storage Structure: Disk Structure, Disk Scheduling, FCFS, SSTF, SCAN, C-SCAN, Look Scheduling,

Text Books:
1. Silberschatz, Galvin: "Operating System Concepts", Addison Wesley Publishing Company, 1989.
2. A.M. Lister: "Fundamentals of Operating Systems", Macmillan Publishers Ltd.

Reference Books:
1. William Stallings, "Operating Systems", Macmillan Publishing Company.
2. Deitel H.M. "An Introduction To Operating System", Addison Wesley Publishing.
3. Tanenbaum A.S. "Modern Operating System", Prentice Hall of India Pvt.Ltd.1995.

DCA-151 Lab-I (Problem Solving Using C)

Credits: 3 **External Maximum Marks:** 50 **External Pass Marks:** 20 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%)	**Instructions for paper setter / candidates** Laboratory examination will consist of two parts: (i) Performing a practical exercises assigned by the examiner (40 marks). (ii) Viva-voce examination (10 marks)

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Write, Compile and Execute program in C language
CO2:	Test and debug the programs for critical errors
CO3:	Analyze and optimize program
CO4:	Develop Software using Procedural approach

List of Experiments

1. Write a program to find the largest of three numbers (if-then-else).

2. Write a program to find the largest number out of ten numbers (for statement).

3. Write a program to find the average male height & average female heights in the class

(Input is in form of Gender, class, height).

4. Write a program to find roots of quadratic equation using functions and switch statement.

5. Write a program using arrays to find the largest and second largest no.

6. Write a program to multiply two matrices.

7. Write a program to read a string and write it in reverse order.

8. Write a program to concatenate two strings.

9. Write a program to sort numbers using the Quick sort Algorithm.

10. Write a program for Matrix Addition.

11. Write a program for Linear Search in an array.

12. Develop a small project using graphics library in c.

DCA-152 Lab-II (Office Applications)

Credits: 3 **External Maximum Marks:** 50 **External Pass Marks:** 20 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%)	**Instructions for paper setter / candidates** Laboratory examination will consist of two parts: (i) Performing a practical exercises assigned by the examiner (40 marks). (ii) Viva-voce examination (10 marks)

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Install different office automation Software.
CO2:	Write, edit, print, the letter, application and report etc.
CO3:	Develop sophisticated worksheets
CO4:	Optimize worksheets, workbook and Reports etc.

List of Experiments

1. Preparing a Govt. Order / Official Letter / Business Letter / Circular Letter
Covering formatting commands - font size and styles - bold, underline, upper case, lower
Case, superscript, subscript, indenting paragraphs, spacing between lines and characters, tab
Settings etc.
2. Preparing a newsletter:
To prepare a newsletter with borders, two columns text, header and footer and inserting a
Graphic image and page layout.
3. Creating and using styles and templates
To create a style and apply that style in a document
To create a template for the styles created and assemble the styles for the template.
4. Creating and editing the table
To create a table using table menu
To create a monthly calendar using cell editing operations like inserting, joining, deleting,
Splitting and merging cells
To create a simple statement for math calculations viz. totaling the column.
5. Creating numbered lists and bulleted lists
To create numbered list with different formats (with numbers, alphabets, roman letters)
To create a bulleted list with different bullet characters.
6. Printing envelopes and mail merge.
To print envelopes with from addresses and to addresses
To use mail merge facility for sending a circular letter to many persons
To use mail merge facility for printing mailing labels.
7. Create an advertisement, resume.
8. Using formulas and functions:
To prepare a Worksheet showing the monthly sales of a company in different branch
 Office (Showing Total Sales, Average Sales).
 Prepare a Statement for preparing Result of 10 students in 5 subjects (using formula to get Distinction, I Class, II Class and Fail under Result column against each student).
9. Operating on the sheets:

Finding, deleting and adding records, formatting columns, row height, merging, splitting columns etc. Connecting the Worksheets and enter the data.

10. Creating a Chart:

To create a chart for comparing the monthly sales of a company in different branch offices.

Computer on Office Automation

11. Creating a new Presentation based on a template – using Auto content wizard, design template and Plain blank presentation.
12. Creating a Presentation with Slide Transition – Automatic and Manual with different effects.
13. Creating a Presentation applying Custom Animation effects.
14. Applying multiple effects to the same object and changing to a different effect and removing effects.
15. Creating and Printing handouts

Semester-II

DCA-201 Computer Networks

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Characterize various types of computer networks and standards along with an insight into the principles of networking by using protocol layering of the Internet and the TCP/IP protocol suite.
CO2:	Comprehend the notion of data communication and its related functional components and aspects.
CO3:	Recognize design issues related to Local area Networks and get acquainted with the prevailing wired and wireless LAN Technology standards.
CO4:	Get versed with the routing, addressing and congestion control issues in Networks and the Internet architecture.

PART – A

Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks and their Topologies; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; OSI Reference Model; TCP/IP Model;

PART –B

Analog and Digital Communications Concepts: Analog and Digital data and signals; Bandwidth and Data Rate, Capacity, Baud Rate; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Modems and modulation techniques;

PART – C

Data Link Layer Design issues; Error Detection and Correction methods; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat, Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth;

PART – D

Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Congestion Control Introduction to DNS, E-Mail and WWW services; Network Security Issues: Security attacks, Encryption methods, Firewalls, Digital Signatures.

Text Books:
1. Andrew S. Tanenbaum, Computer Networks, PHI.
2. Behrouz A Forouzan: Data Communications and Networking, McGraw Hill Education.

Reference Books:
1. Michael A. Gallo, William M. Hancock, Computer Communications and Networking Technologies, CENGAGE learning.
2. William Stallings, Data and Computer Communications, PHI.

DCA-202 Internet Technology and Web Page Design

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Understand the principles of creating an effective web page.
CO2:	Recognize different network protocols.
CO3:	Understand Web designing Principals and Use of Various HTML Tags
CO4:	Develop dynamic websites using java script

PART–A

Internet: Evolution of Internet, Internet Application, Network requirements, Bandwidth, Internet features.

Introduction to Computer Networks: Types of Computer Networks and their topologies. Introduction to Internet and World Wide Web, Evolution and History of World Wide Web.

PART–B

Web Browsers: Web Servers, Hypertext Transfer Protocol, URL, Search Engines and Search Tools.

Internet Concepts: IP addresses, DNS; Internet Services; E-mail, File transfer and FTP, Remote login using TELNET, Internet Connections: Dialup, Leased lines, Modems, DSL.

PART–C

Introduction to HTML : The development process, Html tags and simple HTML forms, web site structure

Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms, Working with Radio Buttons; Check Boxes; Text Boxes.

PART–D

Java Script : Client side scripting, What is JavaScript, How to develop JavaScript, simple Java Script programs

CSS: Formatting your site with Cascading Style Sheets, Web Design: Web site design principles, planning the site and navigation, Web Publishing, Hosting Site.

Text Books:
1. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.
2. Deitel H.M., Deitel P.J., Internet & World Wide Web: How to program, Pearson Education.
3. Kogent Learning, Web Technologies: HTML, JavaScript, PHP, Java, JSP, XML, AJAX – Black Book, Wiley India Pvt. Ltd.

Reference Books:
1. Thomas A. Powell, "Web Design: The Complete Reference" 4/e, Tata McGraw-Hill
2. Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill.

DCA-203 Database Management System

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40(i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Define data independence, data models for database systems, database schema.
CO2:	Apply queries on database to perform specific operations.
CO3:	Identify prime and non-prime attributes in RDBMS
CO4:	Design a real database application using ER Diagrams.

PART–A

Basic Concepts – Data, Information, Records and files. Traditional file Based Approach, Limitations of Traditional File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS.

PART-B

Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene. Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level, Database Languages – DDL, DML, DCL, SQL, Mappings – External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence

PART-C

Data Models: Records-based Data Models, Object-based Data Models, Physical Data Models and Conceptual Models ,Entity-Relationship Model – Concepts, Entity Types, Entity Sets, Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc. ER Diagrams of any Database Organization- Inventory System, Payroll System, Reservation System, Online Book Store etc.

PART-D

Classification of Database Management System, Centralized and Client Server architecture Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations and Properties of Relations.
Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relation.

Text Books:
1. Elmasri Ramez & Navathe Shamkant B, "Fundamentals of Database Systems", Addision & Weisely, New Delhi, 2007
2. Date C.J., "Database Systems", Prentice Hall of India, New Delhi, 2004

Reference Books:
1. Korth H.F. & Silverschatz A., "Database Concepts", Tata McGraw Hill, New Delhi, 2010
2. Thomas Connolly Carolyn Begg, "Database Systems", 3/e, Pearson Education

DCA-204 E-Commerce

Credits: 4 **Examination Duration:** 3 Hours **External Maximum Marks:** 75 **External Pass Marks:** 30(i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%) **Total Maximum Marks:** 100 **Total Pass Marks:** 40 (i.e. 40%)	**Instruction for paper setters**: The question paper shall be of 3 hours duration and shall carry 75 marks. Total 9 questions of equal marks will be set. 2 questions from each PART of the syllabus. Question no. 9 will be compulsory covering the entire syllabus and having minimum 5 subparts. **Instruction for Candidates**: Candidates are required to attempt five questions in all, one question from each PART and question no. 9 will be compulsory.

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Acquire the knowledge of fundamentals of electronic commerce
CO2:	Understand the difference between traditional commerce and ecommerce.
CO3:	Apply the acquired knowledge about various models of e-commerce.
CO4:	Evaluate different types of business transaction.

PART–A

E-commerce and its Technological Aspects Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Types of E-Commerce-B2B,B2C,C2B,C2C etc.

PART–B

Consumer Oriented E Commerce, E-Retailing: Traditional retailing and e retailing, Benefits of e retailing, Key success factors, Models of e retailing, Features of e retailing. E services: Categories of e-services, Web-enabled services, match making services, Information-selling on the web, E entertainment, Auctions and other specialized services.

PART–C

Electronic Data Interchange: Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements and EDI Security. Electronic Payment Systems, Need of Electronic Payment System: Study and examine the use of Electronic Payment system and the protocols used, Study Electronic Fund Transfer and secure electronic transaction protocol for credit card payment. Digital economy: Identify the methods of payments on the net – Electronic Cash, cheques and credit cards on the Internet.

PART–D

Security in E Commerce Threats in Computer Systems: Virus, Cyber Crime Network Security: Encryption, Protecting Web server with a Firewall, Firewall and the Security Policy, Network Firewalls and Application Firewalls, Proxy Server. Information Rights: Information collected at E-Commerce Websites, The Concept of Privacy, Legal protections Intellectual Property Rights: Types of Intellectual Property protection, Governance.

Text Books:
1. Elias. M. Awad:" Electronic Commerce", Prentice-Hall of India Pvt Ltd.
2. Ravi Kalakota, Andrew B. Winston, "Electronic Commerce-A Manager's guide", Addison-Wesley

Reference Books:
1. Efraim Turban, Jae Lee, David King, H. Michael Chung, "Electronic Commerce–A Managerial Perspective", Addison-Wesley.
2. Elias M Award, "Electronic Commerce from Vision to Fulfilment", 3rd Edition, PHI, Judy Strauss,

DCA-251   Lab-III (Database Management System)

Credits: 3 **External Maximum Marks:** 50 **External Pass Marks:** 20 (i.e. 40%) **Internal Maximum Marks:** 25 **Internal Pass Marks:** 10 (i.e. 40%)	**Instructions for paper setter / candidates** Laboratory examination will consist of two parts: (i) Performing a practical exercises assigned by the examiner (40 marks). (ii) Viva-voce examination (10 marks)

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Recognize different features of Database Management System.
CO2:	Create a Database and apply queries on set of data.
CO3:	Apply different constraint on data and structure of a table in RDBMS.
CO4:	Create and Print forms and reports for a particular database.

List of Experiments

1. Familiarization with DBMS (ORACLE/FOXPRO/MS-ACCESS/MY SQL/POSTGRE SQL)
2. Create a database and write the programs to carry out the following operation:
     (i) Add a record in the database. (ii) Delete a record in the database. (iii) Modify the
     Record in the database. (iv) Generate queries (v) List all the Records of database in ascending order.
3. Creation, altering and dropping of tables and inserting rows into a table (use
    Constraints while creating tables)
4. Apply Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING
    and Creation and dropping of Views.
5. Develop a menu driven project management of database system: (i) Library information
    system
6. Create a Form having text boxes, command boxes to save and update information in Database.
7. Generate a Report from existing DBMS by using wizard.
8. Generate query by using auto wizard in DBMS

DCA-252   Lab-IV (Internet Technology and Web Page Design)

Credits: 3 External Maximum Marks: 50 External Pass Marks: 20 (i.e. 40%) Internal Maximum Marks: 25 Internal Pass Marks: 10 (i.e. 40%)	**Instructions for paper setter / candidates** Laboratory examination will consist of two parts: (i) Performing a practical exercises assigned by the examiner (40 marks). (ii) Viva-voce examination (10 marks)

Course Outcomes(COs)	Upon completion of this course, the students will be able to:
CO1:	Understand and interpret standard web technologies
CO2:	Develop Static and Dynamic Web Pages
CO3:	Develop sophisticated web sites and web applications
CO4:	Optimize web sites and databases

List of Experiments

To create dynamic animation, simulations and interactive web pages using HTML, Java Script.

Create databases using: HTML / Java Script / DHTML/XML.

WEB Technology

1. Setting up intranet.
2. Installation of tools – DHTML, flash, director
3. Design of web pages/sites.
4. Development of web pages/site.
5. Evaluation of web site.
6. Registering of website.
7. Create a HTML based static website.
8. Create an Animated movie in flash.
9. Creating a web page by using CSS.
10. Creating Dynamic Websites using java script.
11. Implementation of Network Management Commands on DOS (ipconfig, ping, dns, nslookup, netstat, tracert, arp etc.)